## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1. (currently amended)  A method for measuring conductance of a sample using an eddy current probe comprising a sensing coil, comprising:

(a) with the eddy current probe at a first separation from the sample, and with an AC voltage in the sensing coil, measuring a first voltage pair comprising in-phase and quadrature components of an induced AC voltage in the sensing coil;

(b) with the eddy current probe at the first separation from a reference material, and with the AC voltage in the sensing coil, measuring a second voltage pair comprising in-phase and quadrature components of an induced AC voltage in the sensing coil;

(c) calibrating the first signal based on the measured second signal;

(d) performing N repetitions of operations (a) and (b), where N is a positive integer, with the eddy current probe at a different separation from the sample and reference material during each of said repetitions;

(e) determining a conductance function relating conductance with location along [[the]] a selected curve; and

(f) after operations (a) through (e), processing the calibrated first voltage pairs obtained in operations (a) through (c) to generate a lift-off curve, determining an intersection voltage pair representing intersection of the lift-off curve with [[a]] the selected curve, and determining the conductance of the sample from the intersection voltage pair and the conductance function.

2. (currently amended)  The method of claim 1, operation (f) further comprising:

(g) for each of several eddy current probe separations from a first reference sample of known conductance, and with an AC voltage in [[the]] a drive coil, measuring an induced voltage pair comprising in-phase and quadrature components of an induced AC voltage in the sensing coil, and processing said induced voltage pairs to generate a reference lift-off curve;

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(h) repeating operation (g) for each of a number of different reference samples of known conductance; and

(i) processing the reference lift-off curves generated during operations (g) and (h) to determine reference intersection voltage pairs representing intersections of the reference lift-off curves with the selected curve, and generating the conductance function from said reference intersection voltage pairs.

3-6. (canceled)

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